63-3-4

TM-782/000/00

# TECHNICAL MEMORANDUM

(TM Series)

DDC AVAILABILITY NOTICE

Qualified requesters may obtain copies of this report from DDC.

This document was produced by SDC in performance of contract AF 04(695)-40

COPII Core Allocation

By

B. R. Pruett

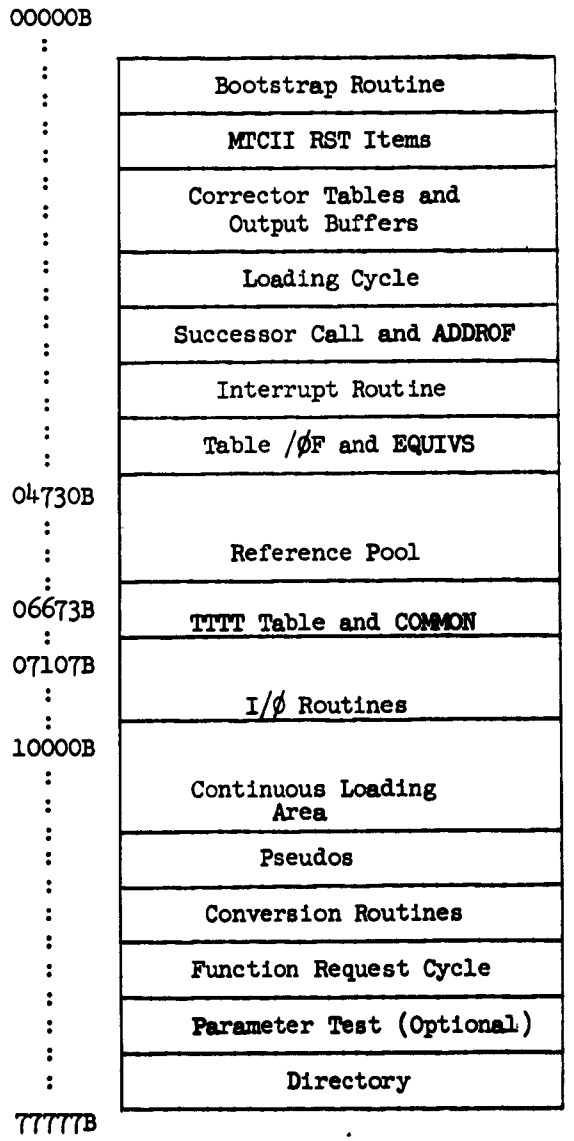
J. B. Munson



30 October 1962

SYSTEM DEVELOPMENT CORPORATION
2500 COLORADO AVE.
SANTA MONICA
CALIFORNIA

The upper portion of core from approximately 75400B to 77777B is now used by the COPII System for the directory and other tables. There are some functions in the system which either require all of core from 10000B to 77777B or are very close to requiring the area now used for the directory. To handle all programs, large or small, MTCII will be revised so that all of core will be available for the continuous loading of a function and its environment. The core allocation will be:



The portions of MTCII which will be allocated space in upper memory will include the function request cycle, the function card conversion routines, the pseudos, parameter test (optional), and the directory. The order of these five parts of MTCII in core will depend upon the frequency of their usage.

The directory is the first element in upper core. It is used by MTCII in the loading cycle and by routines in the COPII System (SYMDUMP, SUBERR, COMPAIR, OCTALIST and others).

The function request cycle is the second most frequently used part of MTCII. In addition to accepting requests from cards, typewriter and tape, this cycle may be called upon by an object program (a function that is being executed) to load another element from the Master Tape and either execute it (successor function) or supply its starting location to the object program (ADDRØF).

The parameter test feature in COPII will be a test tool used in checkout of a program. It must remain in memory during the operation of the object program, since it controls its operation.

The conversion routines are used by the function request cycle to convert the parameters and mods. These routines are not required while an object program is in control because the successor function and ADDRØF feature perform no conversions.

The pseudo code is required only when a pseudo function is requested.

MTCII Flow

Upon initiating the COPII System, all parts of MTCII will be loaded. This includes all the routines below 10000B and the four elements that will be kept in upper core. A function request will then be read and output on-line and on the System Output Tape. The requested function and its environment will be assigned starting locations. If more core than the area allotted to the continuous loading cycle is required by the function and its environment, MTCII will increase the continuous loading area. This will be accomplished by using from one to four of the areas in upper core. Flags will be set to indicate which portions of MTCII must be re-loaded after the operation of the current function. Prior to operating this function, the Master Tape will be rewound so that the time required to re-load will be a minimum.

Henceforth, prior to the time a function request is input, a check is made to determine if all elements of MTCII required for the operation are in core. If they are not, the required elements are re-loaded. The request is then read and processed.

If a request is made while an object program is in operation, either a successor call function or ADDROF (see section 03 of TM-745/000/00, Master Tape Control II) request, MTCII will determine if the necessary MTCII elements are in core.

If the request is for a successor function, MTCII will be initialized and the continuous loading cycle will begin at 10000B (unless MTCII is in the Special Operation Mode). The MTCII elements are re-loaded if necessary, and the function will be processed in the normal fashion.

If MTCII elements are required and the ADDROF feature is requested by the object program, a check will be made to determine if there is room for the required MTCII elements. If not, a halt will occur. Otherwise, the MTCII elements are re-loaded and the ADDROF request is processed and control is transferred back to the object program.

Parameter Test Feature

If a function wishes to utilize the parameter test feature of COPII, allowance must be made for the area required by it (about 10000B cells). It will be loaded into high core by MTCII and must remain during the operation of the requested function.

Size of Programs

A program is defined as a function and its environment. The size of some programs in the COPII System (e.g., REDUCE) is so large that they require over 65000B cells of core. Problems will be encountered with such programs only if the parameter test feature is desired.

Usage of Parameter Test Feature

The parameter test feature requires the area from 70000B to 77777B for its code and the directory. Large programs such as REDUCE will not be able to utilize this debugging tool because there is not room for both the function and the parameter test program. A solution to this storage problem would be to split the function into more than one part. The first part could be called by a function request. The first part could then utilize the successor function feature of MTCII to load and operate the next part; etc. The successor function feature is described in section 03 of TM-745/000/00.

DISTRIBUTION LIST
(EXTERNAL)

Space Systems Division
(Contracting Agency)
Maj. C. R. Bond (SSOCD)

6594th Aerospace Test Wing
(Contracting Agency)
Col. A. W. Dill (TWRD)
Col. M. S. McDowell (TWRU)
TWRAT

PIR-E1 (Lockheed)
D. A. Hemmes
W. H. Moorman
R. M. Powell
E. Schaefer
G. F. Taylor
R. L. Vader

PIR-E1 (Lockheed)
162 Program Office
Program 698 BJ Office
Manager, Requirements and
Integration, Program 698 BK

PIR-E2 (Philco)
J. A. Bean
R. A. Isaacs
R. Morrison
W. Yenney

PIR-E4 (GE-Box 8661)
J. D. Rogers

PIR-E3 (LFE)
D. F. Criley
K. B. Williams

PIR-E5 (Aerospace)
R. D. Brandsberg
B. C. Dove
T. R. Parkin
R. G. Stephenson
V. White

PIR-E8 (Mellonics)
F. Druding

PIR-E8 (STL)
A. J. Carlson, Jr. (3)

PIR-E4 (GE-Sunnyvale)
D. Alexander
J. Farrentine
N. Kirby

PIR-E4 (GE-Box 8555)
R. J. Katucki
J. D. Selby
H. Winn

PIR-E4 (GE-Phila)
J. F. Butler
H. D. Gilman

PIR-E4 (GE-Bethesda)
A. Pacchioli

30 October 1962 TM-782/000/00

DISTRIBUTION LIST
(internal)

| NAME | ROOM | NAME | ROOM |
|---|---|---|---|
| Allen, R. W. | 22109A | Haake, J. W. | 24120 |
| Allfree, D. | 22076 | Harris, E. D. | 24083 |
| Alperin, N. I. | 24116 | Henley, D. E. | 24058B |
| Armstrong, E. | 24089 | Henry, T. R. | 24061 |
| Bernards, R. M. | Sunnyvale | Hill, C. L. | 24057 |
| Biggar, D. | 24091 | Hirschfield, G. A. | 22113A |
| Black, H. | 14032 | Holmes, M. A. | 22079 |
| Blum, M. | 24086 | Holzman, H. J. | 22096B |
| Brenton, L. | 24034 | Houghton, W. H. | 22073 |
| Burke, B. E. | 24076 | Hoyt, R. L. | 14032 |
| Busch, R. E. | 24065B | Imel, L. E. | 14032 |
| Carter, J. S. | 27032 | Kastama, P. T. | 24053 |
| Champaign, M. E. | 24127B | Kayser, F. M. | 25026 |
| Chiodini, C. M. | 24075 | Keddy, J. R. | 24026 |
| Ciaccia, B. | 14069 | Key, C. D. | 24123 |
| Cline, B. J. | 24097 | Keyes, R. A. | 24034 |
| Cogley, J. L. | 24135 | Kinkead, R. L. | 24071 |
| Conger, L. | 22076 | Kneemeyer, J. A. | 24065A |
| Cooley, P. R. | 24083 | Knight, R. D. | 24103A |
| Court, T. D. | 22070 | Kolbo, L. A. | 24139 |
| Dant, G. B. | 22073 | Kostiner, M. | 14048 |
| DeCuir, L. E. | 22096A | Kralian, R. P. | 14032 |
| Derango, W. C. | 14058 | Kristensen, K. | Sunnyvale |
| Dexter, G. W. | 24117 | LaChapelle, F. | 24061 |
| Disse, R. J. | 24123 | Laughlin, J. | 24034 |
| Dobbs, G. H. | 24094 | LaVine, J. | 24081 |
| Dobrusky, W. B. | 22119 | Little, J. L. | 24077 |
| Donnelly, S. | 22082 | Long, F. | 24116 |
| Ellis, R. C. | 22078 | Lytton, J. G. | 24082B |
| Emigh, G. A. | 14032 | Madrid, G. A. | 24049 |
| Ericksen, S. R. | 24110 | Mahon, G. A. | 22073 |
| Felkins, J. | 24034 | Marioni, J. D. | 24074B |
| Foster, G. A. | 14032 | Martin, W. P. | 24089 |
| Franklin, A. | 22079 | McKeown, J. | 24121 |
| Franks, M. A. | 25030 | Michaelson, S. A. | 14032 |
| Frieden, H. J. | 24071 | Milanese, J. J. | 24122 |
| Gale, B. | 22110 | Munson, J. B. | 24048 |
| Greenwald, I. D. | 24058A | Myers, G. L. | 14056A |
| Griffith, E. L. | 27029 | Nelson, P. A. | 24075 |

DISTRIBUTION LIST
(internal)
cont.

| NAME | ROOM |
|---|---|
| Ng, J. | 24049 |
| Ngou, L. | 24030 |
| Padgett, L. A. | 24085 |
| Patin, O. E. | Sunnyvale |
| Polk, T. W. | 24099 |
| Pruett, B. R. | 24073 |
| Rabin, M. | 14032 |
| Reilly, D. | 24085 |
| Remstad, C. L. | 27029 |
| Rosenberg, E. J. | 14054 |
| Rothman, S. | 22116A |
| Russell, R. S. | 14054 |
| Salisbury, L. W. | 14052 |
| Scholz, J. W. | 24034 |
| Scott, R. J. | 24093 |
| Seacat, C. M. | Sunnyvale |
| Seiden, H. R. | 22091A |
| Shapiro, R. S. | 25026 |
| Skelton, R. H. | 24127A |
| Solomon, J. | 24053 |
| Speer, N. J. | 24081 |
| Stone, E. S. | 22116B |
| Sweeney, M. J. | 24057 |
| Tennant, T. C. | 27024 |
| Testerman, W. D. | 14032 |
| Thompson, J. W. | 22077 |
| Thornton, R. L. | 14032 |
| Totschek, R. A. | 22099 |
| Vorhaus, A. H. | 24082A |
| Wagner, I. T. | 22078 |
| West, G. D. | 24114 |
| West, G. P. | 24094 |
| Wilson, G. D. | 22101 |
| Winsor, M. E. | 24137 |
| Winter, J. E. | 24097 |
| Wise, R. C. | 24051 |
| Wong, J. P. | Sunnyvale |
| Zubris, C. J. | 22070 |
| AFCPL (5) | 14059 |